

## ABSTRACT

5 A transmission diffraction grating body including a base material  
being substantially transparent with respect to wavelength  $\lambda_1$  and having a  
refractive index  $n_0$ ; another base material being substantially transparent  
with respect to wavelength  $\lambda_1$  and having a refractive index  $n_1$ , which is  
formed on the base material having a refractive index  $n_0$ ; and a relief  
diffraction grating formed on the base material having a refractive index  $n_1$ ;  
wherein the refractive indexes  $n_1$  and  $n_0$  satisfy the relationship:  $n_1 > n_0$ .  
10 Thus, the base material having a refractive index  $n_1$  can be formed of a high  
refractive index material, and when the depth of grating of the diffraction  
grating is set so that the diffraction grating diffracts the light with  
wavelength  $\lambda_1$  and does not diffract the light with wavelength  $\lambda_2$ , the depth of  
grating of the diffraction grating can be made to be shallow, thus preventing  
15 the loss of the amount of the light with wavelength  $\lambda_1$ . Furthermore, since  
base materials each having a different refractive index are bonded to each  
other to form a diffraction grating body, it is possible to minimize the use  
amount of the relatively expensive material having a high refractive index.  
Furthermore, since the most of the diffraction grating body can be formed of a  
20 material having a low refractive index, it is possible to lower the height of the  
diffraction index body.